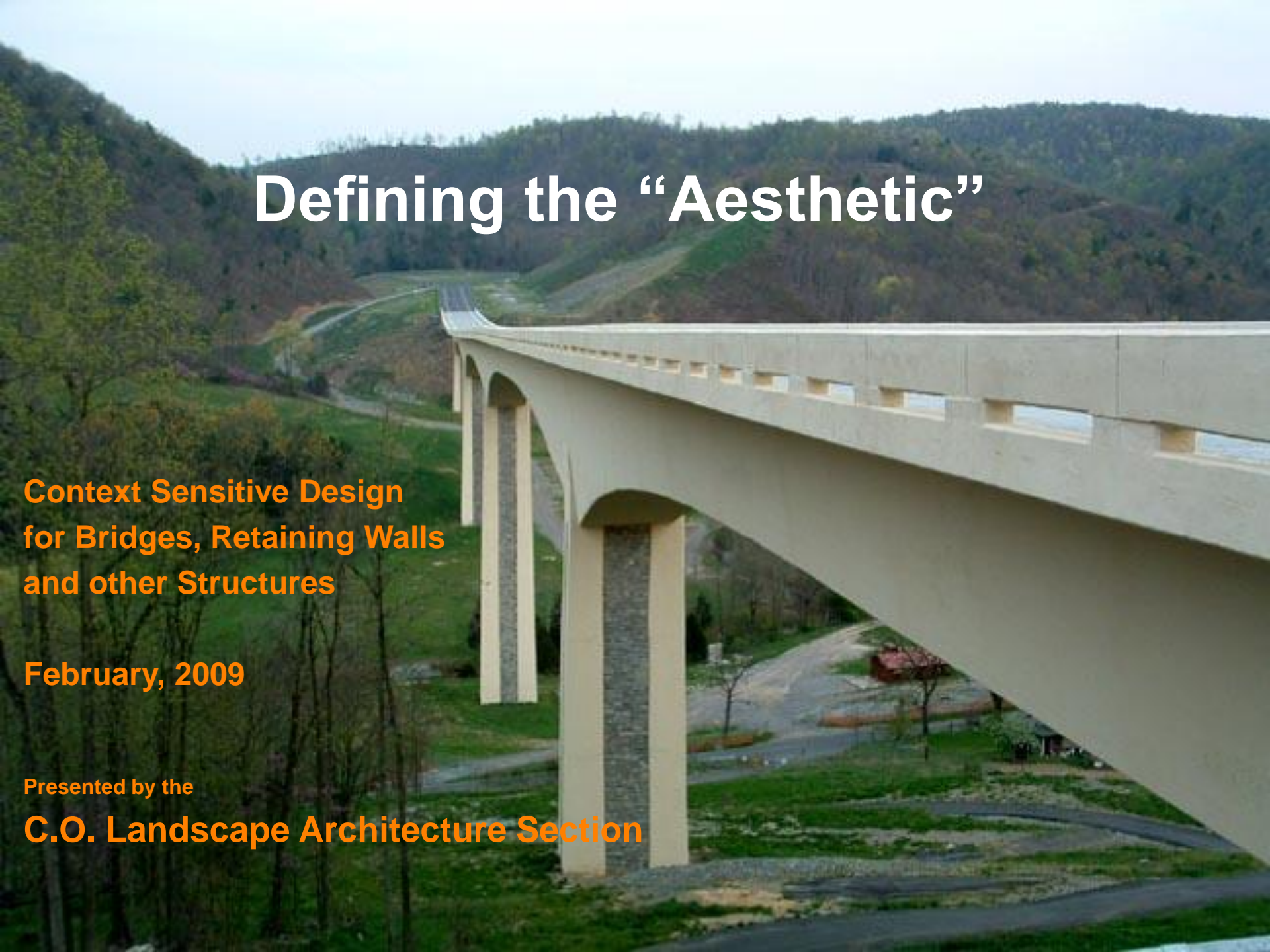


# Defining the “Aesthetic”

**Context Sensitive Design  
for Bridges, Retaining Walls  
and other Structures**

**February, 2009**

**Presented by the  
C.O. Landscape Architecture Section**



# CONTEXT SENSITIVE DESIGN

In this presentation we will explore bridge and structure work in other states that are actively pursuing “art in architecture” on bridges, retaining walls, and sound barrier walls. What is possible on any one of these is possible on all of these.

## Context Sensitive Solutions

### 1. What is possible?

- For Bridge Piers
- For Bridge Rails/Columns
- Designs/Textures/Patterns (For Bridges, MSE Walls, etc.)

### 2. How is it done? (Process)

### 3. A look at a finished product

## Bridge Detailing..... Piers



Texas Department of Transportation, Dallas Texas

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## Bridge Detailing..... Piers



Ohio Department of Transportation, Dayton Ohio

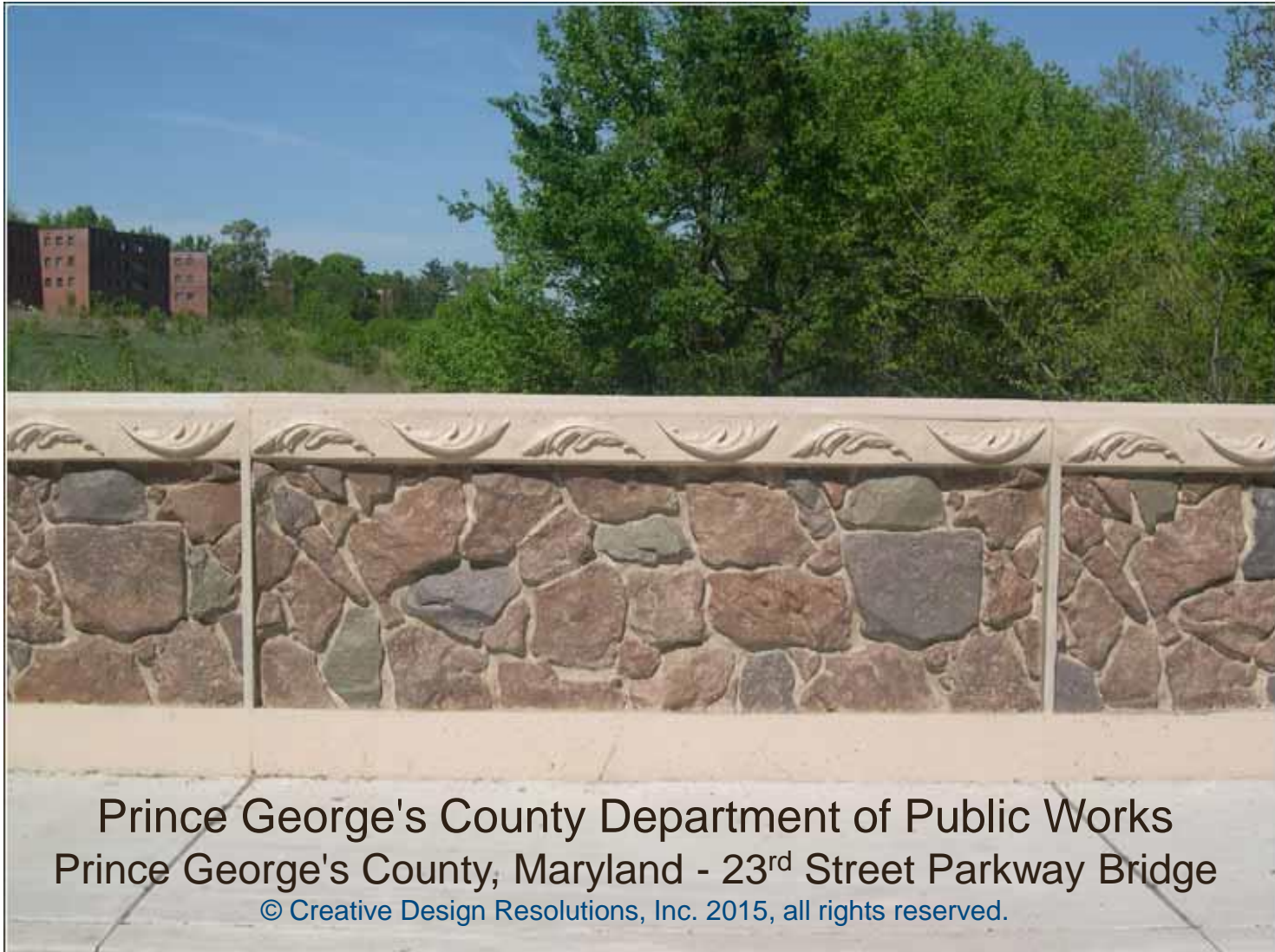
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## Bridge Detailing..... Piers



Simple Shapes, Texture and Color...  
It's not "Rocket Science"

## Bridge Detailing..... Bridge Rails



Prince George's County Department of Public Works  
Prince George's County, Maryland - 23<sup>rd</sup> Street Parkway Bridge

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## Bridge Detailing..... Bridge Rails



Prince George's County Department of Public Works

Prince George's County, Maryland - Racetrack Road Gateway Bridge

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## Bridge Detailing..... Bridge Rails



Oklahoma Art in Public Places Program

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## Design and Texture



Kansas State Highway Administration,  
Wichita, Kansas - Kellogg/Oliver Bridge

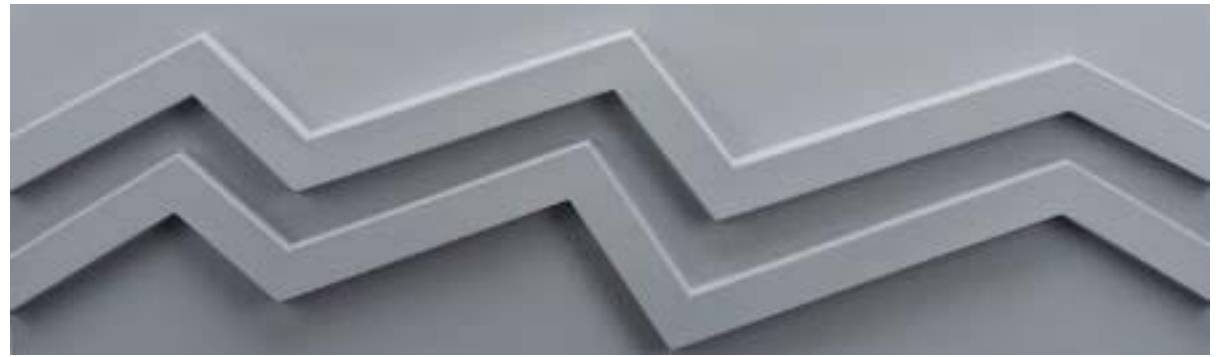
## Design and Texture



The Textures and image inlays are almost limitless...



## Design and Texture



The Textures and image inlays are almost  
limitless...

## Custom Artwork



Ohio Department of Transportation  
Dayton, Ohio - Wright Brothers Flyer

## Custom Artwork

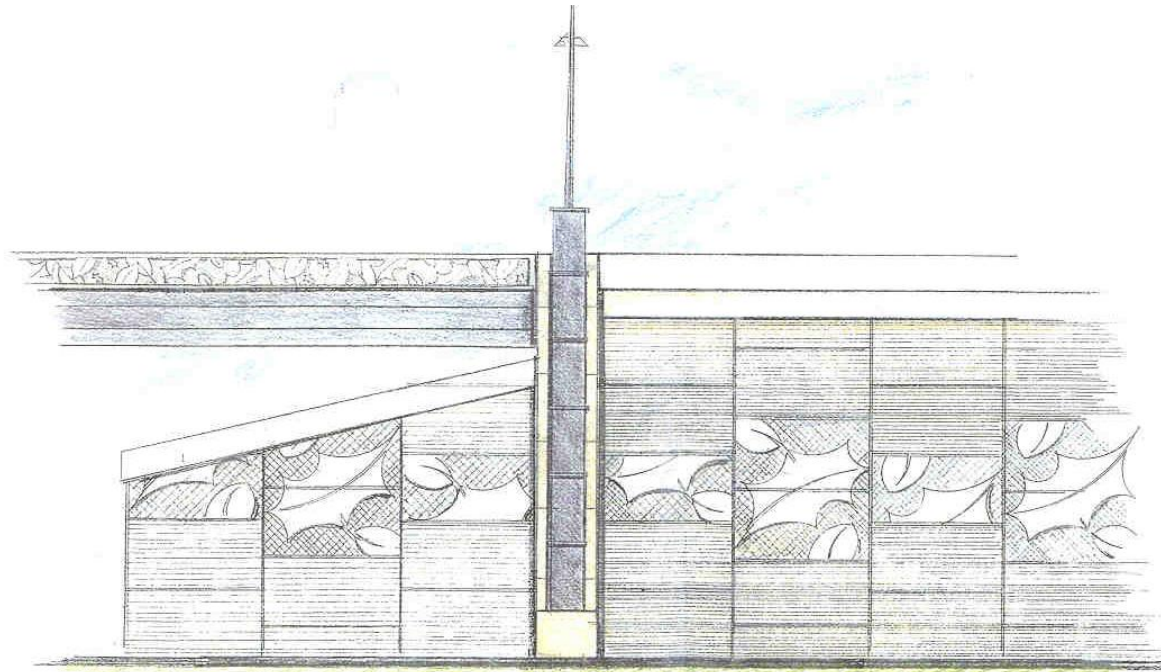


**Jumping Trout  
Glenmore Elbow Interchange (GE5), Calgary,  
Alberta Canada**



## Process....

Once there is a request for special consideration of aesthetics, a concept may be developed based on client input and collaboration between the Structural Engineer, Landscape Architect and Project Manager



*Sylvan Bridge and Retaining Wall*

$\frac{1}{8}'' = 1'-6''$

## Process....



**If natural textures are desired, a number of ready made form liners already exist and are readily available.**

## Process....

**If a custom design is requested, we can work with you and the client to develop that theme as well...**

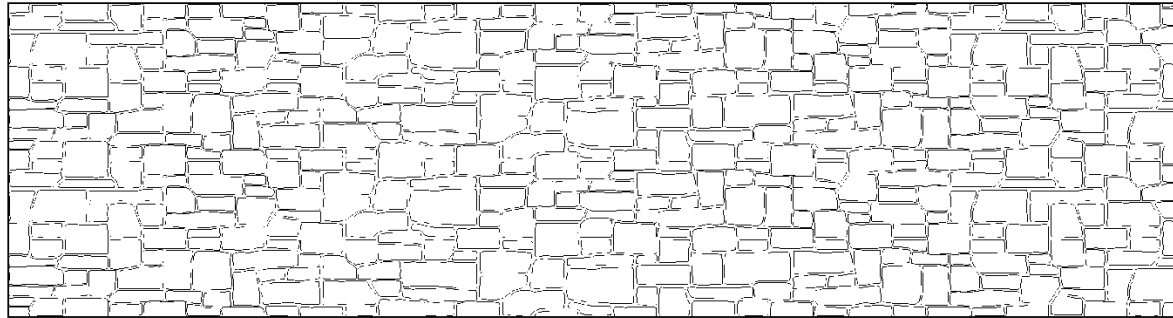


# N O R F O L K



**Process....Next, a set of pattern details are developed to accompany the structural plans.**

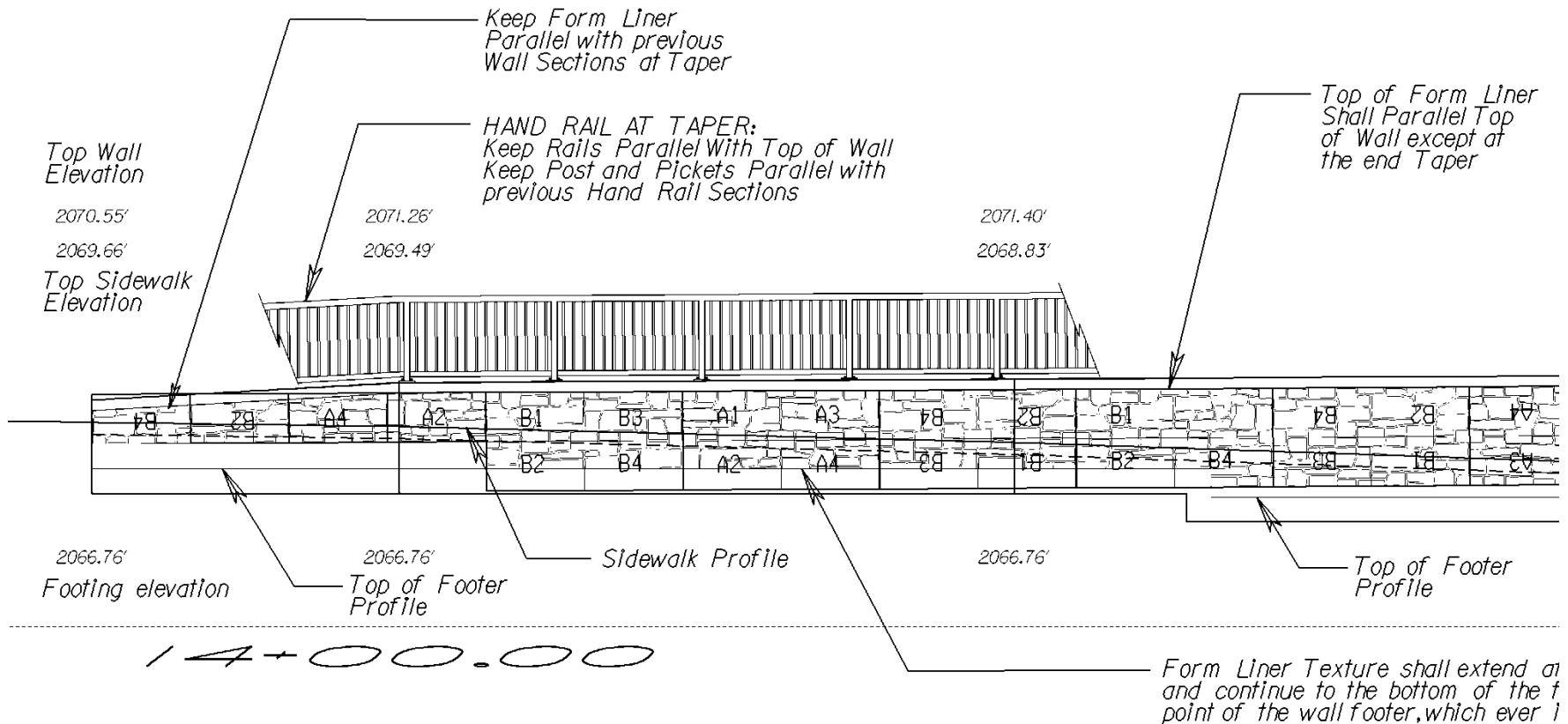
2" x 4" Ashlar Stone Pattern  
Elastomeric Urethane Formliner



B3	A4	B2	A1	A2	A4	B3	B1
A1	A2	B1	B2	B4	A2	A4	B3
B3	A4	B2	A1	A2	A4	B3	B1
A1	A2	B1	B2	B4	A2	A4	B3

**Process....Then a layout detail or profile is developed that illustrates how the form liner (or other design features) will work with the structural design.**

## FORMLINER & HAND RAIL LAYOUT FOR RW-3 RETAINING WALL PROFILE



# Process....Last, we provide the specs...

## VIRGINIA DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION FOR ARCHITECTURAL STONE TREATMENT

February 8, 2008

Proj. 0412-150-101, P101, R201, M501

### I. DESCRIPTION

This work shall consist of developing, furnishing and placing simulated stone masonry by means of concrete form liners in accordance with these specification and in reasonably close conformity with the lines, patterns, textures, colors and dimensions as shown on the plans or established by the Engineer.

### II. QUALITY ASSURANCE

The products and work shall be supplied by a contractor having a minimum of three consecutive years experience in textured/colored concrete construction. The contractor shall furnish evidence to the satisfaction of the Engineer that the proposed products have been successfully used in similar applications. The Engineer shall approve the pattern, color and texture of the sample walls prior to proceeding with the work. The Engineer shall also approve the finished product.

### III. MATERIALS

**Form Liner:** Form liner shall be a high quality re-usable product manufactured of high strength elastomeric urethane which attaches easily to conventional forming systems and shall not compress more than 1/42 of an inch (0.6mm). Form Liners shall match the stone patterns shown on the plans.

**Release Agent:** The release agent shall be compatible with the form liner special surface finish and color system to be applied.

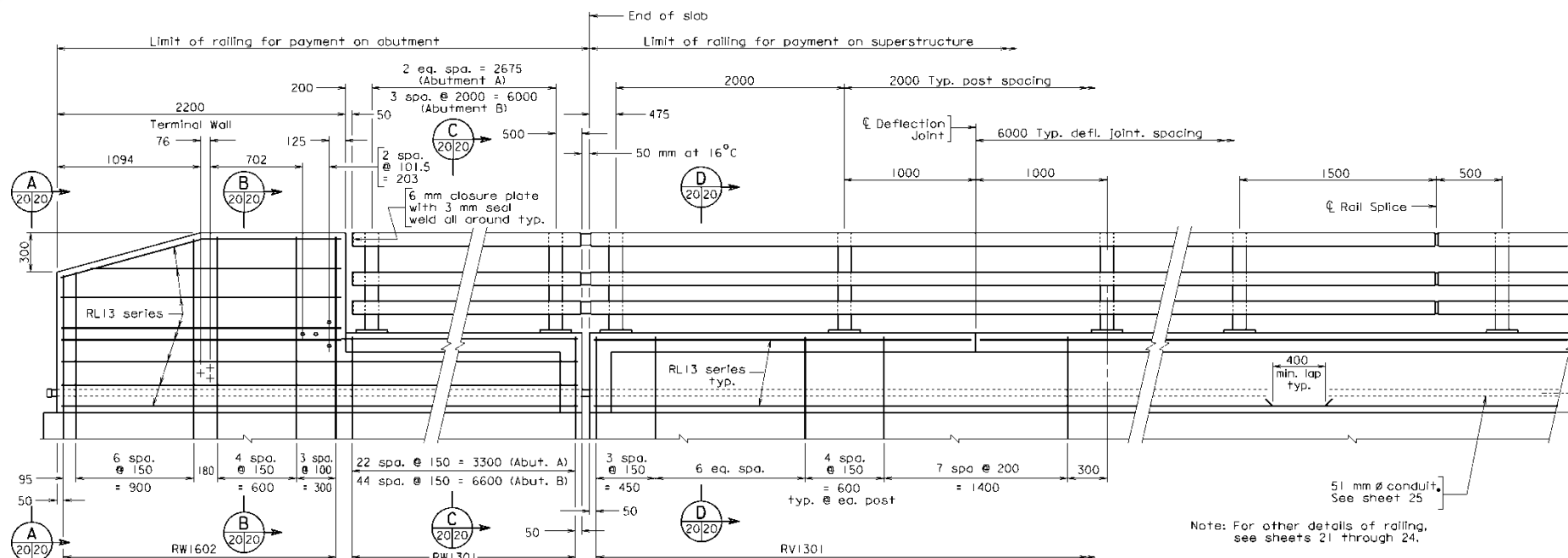
**Wall Ties:** The wall ties shall have set break-backs at 2 inches (50 mm) minimum from the finished concrete surface.

**Penetrating Sealer:** Concrete surface coatings shall be from the Department's current list of approved surface color coatings.



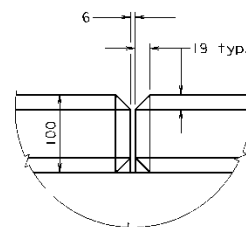
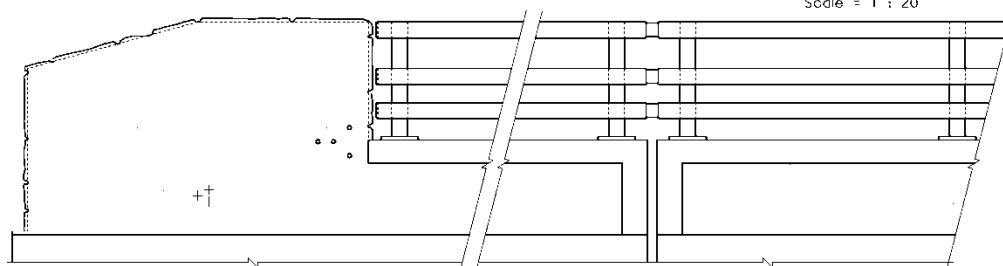
## Lets look at an actual Project...

Bridge and Approaches over the Rivanna River  
(Developed in Culpepper District)



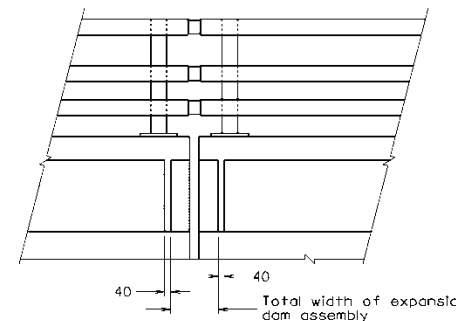
ELEVATION - COMBINATION BIKING/TRAFFIC RAIL

Scale = 1 : 20



DEFLECTION JOINT DETAIL

Scale = 1 : 4

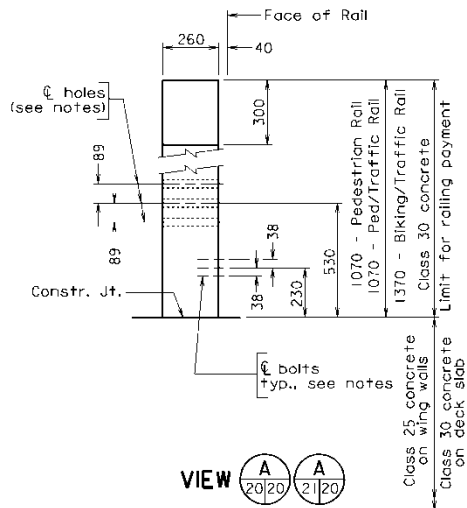


JOINT AT PIER 3

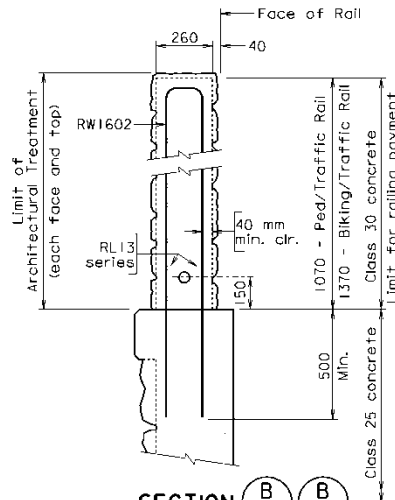
# Here are the Parapet Sections... Bridge and Approaches over the Rivanna River

## ELEVATION - COMBINATION BIKING/TRAFFIC RAIL

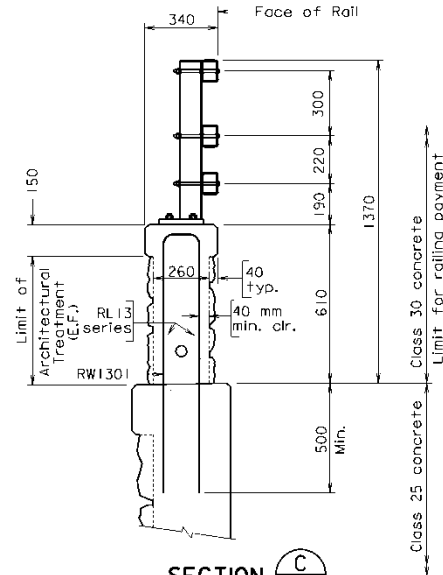
(Showing pattern and limits of Architectural Treatment at Abutments)  
Scale = 1 : 20



Not to Scale  
(Architectural Treatment not shown for clarity)

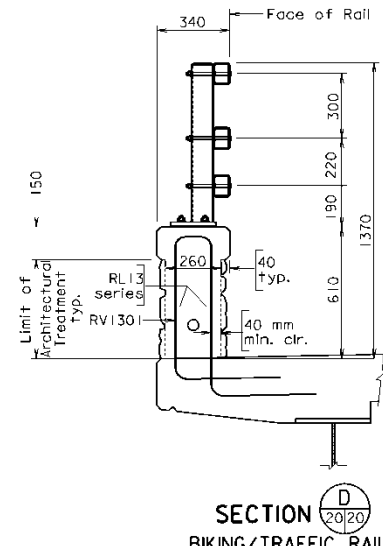


Not to Scale



Not to Scale

(Showing pattern and limits of Architectural Treatment)  
Scale = 1 : 20



Not to Scale

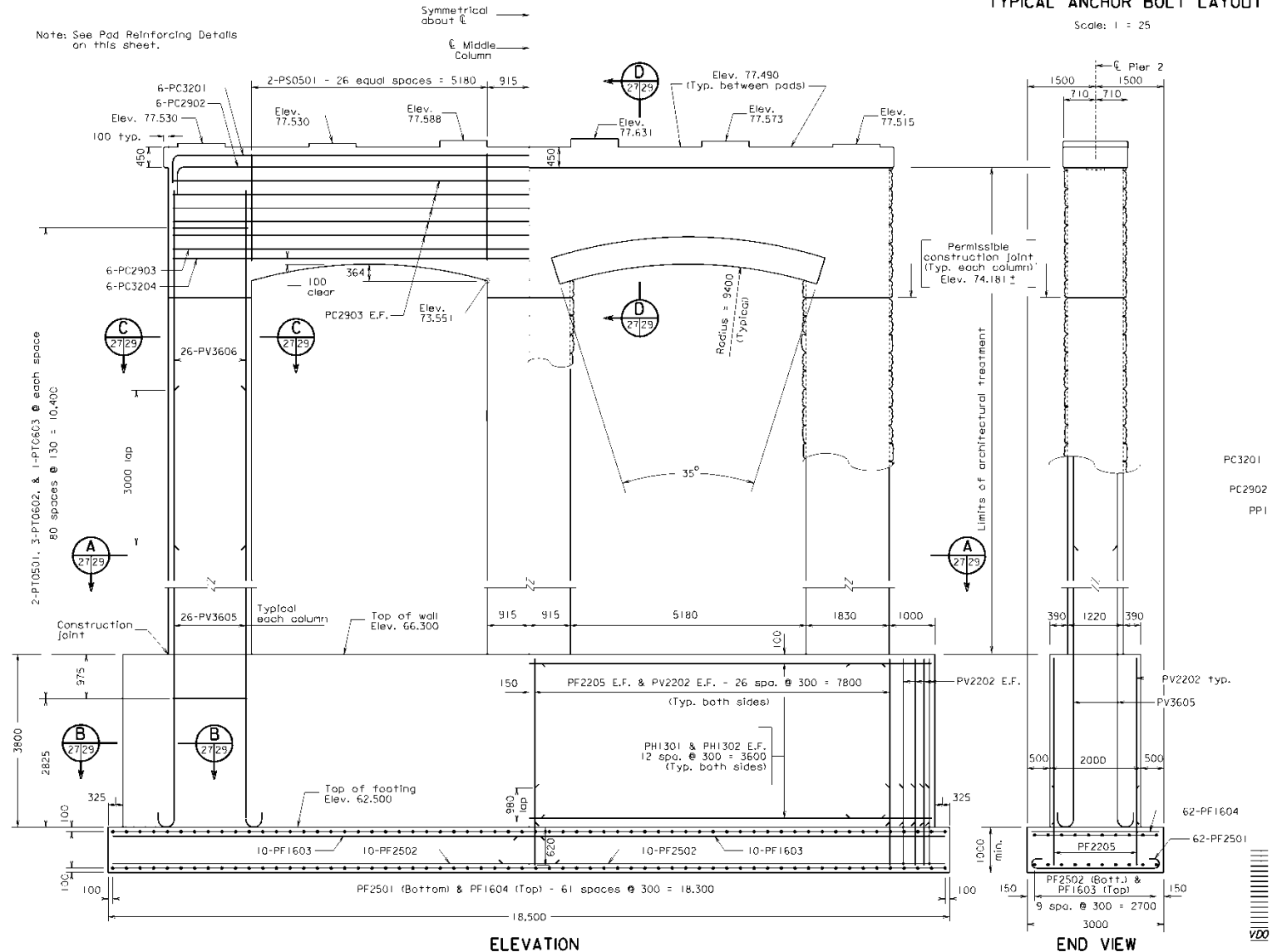
Not to Scale

©2005, Commonwealth of Virginia

# ... And other Architectural Elements... Bridge and Approaches over the Rivanna River

TYPICAL ANCHOR BOLT LAYOUT

Scale: 1 = 25



**And here, the final product....  
Bridge and Approaches over the Rivanna River**





## **We would be happy to assist with...**

- Developing design concepts**
- Creating special design features**
- Developing necessary Details/Plans/Specs**
- Working with your client throughout the process**

**Thank you for your time and attention!**

**For further information or assistance, feel free to contact  
Al Bryan, CLA  
Eastern Region Landscape Architect**

**Central Office L&D**

**(804) 371-6737**